GEOGRAPHY EDUCATORS' NETWORK OF INDIANA

NEWSLETTER

Volume 106, Issue 3 Summer, 2006

Inside this issue:

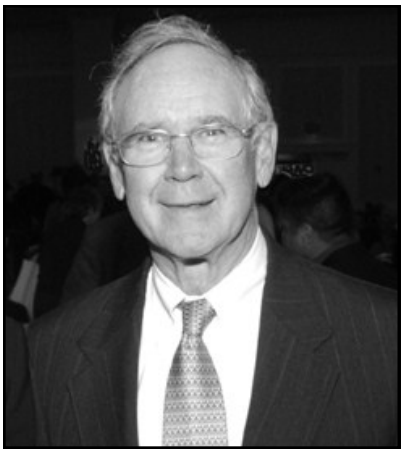
Special Points of Interest:

- *My Wonderful World* Campaign Launched May 2nd
- Summer Educator Opportunities
- 2006 Bee Recap
- Gilbert M. Grosvenor's years of service celebrated

Grand Gala Honors Long-Time National Geographic Leader

On May 3rd, the National Geographic Society presented *"The World of Gilbert M. Grosvenor: A Lifetime of Service, An Evening of Celebration"* to honor the man who has served the Society since 1954 as photographer, author, editor of National Geographic Magazine, President, and most recently, Chairman of the Board. The Gala used Mr. Grosvenor's 75th birthday to recognize his unwavering dedication and to raise awareness for the need to increase geography education in America's schools. For more information on Gilbert Grosvenor's numerous contributions, see the "Featured Geographer" article on page 5.

This grand Gala, held at the Marriott Wardman Park Hotel, brought representa-



Gilbert M. Grosvenor

Continued on page 3

Indiana Geographic Bee Winner Crowned

Last year we had a 7th grader from Evansville, in southern Indiana, win the Indiana Geographic Bee. This year our champion reigns from the north. Jonathan Hielkema, from Highland Christian school in Munster, successfully defeated a tough group of competitors to earn a $100 cash prize, a globe from the National Geographic and a trip out east. He will travel to Washington DC to represent Indiana at the National Geographic Bee May 23-24. The stakes there will include a $25,000 college scholarship.

Jonathan Hielkema celebrates with his family!

The runner up at the Bee was sixth-grader John Hensle from Woodrow Wilson Middle School in Terre Haute and third place went to eighth-grader Jacob Klopfenstein from Memorial Park Middle School in Fort Wayne. They each received a cash prize and globe from the National Geographic as well.

Continued on page 4

Calendar of Events

- June 2-3—**GENI Long Range Planning Meeting** to be held at Taylor University; contact Roger Jenkinson, (765)998-53223, if you are interested in attending.
- June 15-16—**Lincoln Institute** at the University of Southern Indiana. For Information, visit *http://www.usi.edu/hsi/dbigham* or contact Darrel Bigham at (812) 465-7014.
- July 6-12—**PIER International Affaris Summer Institute** with a focus on South Africa. See page 15.
- July 7-16—**Amazon Rainforest Workshop** for K-12 educators. Contact Dr. Frances Gatz at 1-800-669-6806 email *fgatz@earthlink.net.*
- July 9-22—**International Studies Summer Institute** for teachers grades 7-12. This two-week residential institute is held at IU Bloomington. For more information, visit *http://www.indiana.edu/~global/teacherprogram.php.*
- July 15-23—**Costa Rica GIS Institute**; field based learning with GISetc. Visit their website at *www.gisetc.com/costarica_2006.html* .
- July 17-21—**Maps Institute** at the Children's Museum of Indianapolis. Designed for teachers in grades 3-5. See 15.
- July 28-30—**Civil War Preservation Trust Teacher's Institute**. See page 15.
- August 15-17—**Great Lakes Institute** at the Indiana Dunes Environmental Learning Center. See page 15.
- June-Sept.—Free 1 to 4-day **Workshops on the Mississippi River** aboard the Living Lands & Waters floating classroom. See page 15.

Reources

- **Daylight Saving Time**-is here. Be prepared to answer some of those student questions, like "why do we have daylight saving time." Included at this site are advantages/ disadvantages and some history of DST. http://webexhibits.org/daylightsaving/index.html
- **Benjamin Franklin's Essay on Daylight Saving Time**-in preparation for a lesson on Daylight Saving time read Benjamin Franklin's tongue-in-cheek description on how to save candlelight. This document appeared as a letter to the editor of the Journal of Paris, 1784 complete with calculations to prove his point. It's doubtful Ben intended daylight saving to actually be implemented. http://webexhibits.org/daylightsaving/franklin3.html
- **A Reason For the Season**-find classroom activities about reasons for seasons from National Geographic. Embedded links for illustrating seasonal positions around the Sun. http://www.nationalgeographic.com/xpeditions/activities/07/season.html
- **Length of Planet Earth's Day and Night**-this Flash animation shows the seasonal variation in the circle of illumination viewing the North Pole. Inset shows the earth's revolution around the sun. This is an excellent way to explain for changes in day length with season. http://www.cs.sbcc.net/~physics/flash/LengthofDay.swf
- **Statistical Sites on the Web**-"Bureau of Labor Statistics (BLS) is the principal fact-finding agency for the Federal Government in the broad field of labor economics and statistics.". http://www.bls.gov/bls/other.htm
- **Historical Maps**-the site focuses on 18th and 19th century historical maps of North and South America. Wonderful resource for viewing how cartographers mental maps of states or regions evolved through time, maps changing from crude guesses of landform position to increasingly accurate maps resembling current representations. http://www.davidrumsey.com/
- **Build a Scale Model of the Solar System**-the calculator will let you put in how large you want the sun to be, in inches or millimeters, and it will calculate the scale diameter of the 9 planets and their distance from the sun. http://www.exploratorium.edu/ronh/solar_system/
- **Fisheries Learning**-discover a collection of lessons and activities about the Great Lakes ecosystem, fisheries and stewardship. http://www.miseagrant.umich.edu/flow/about.html
- **Guide to Mostly On-line and Mostly Free US Geospatial and Attribute Data**-this site has the web addresses of most state GIS clearing houses and associated state sites. State sites are a great source of data for specific areas. Most data can be downloaded for free. http://libinfo.uark.edu/GIS/us.asp
- **WebGIS**-this site provides one of the cleanest, quick loading interfaces for access to GIS datasets including terrain, land use and land cover (LULC), and Digital Line Graphs (DLG). http://www.webgis.com/index.html

Grand Gala continued from page 1

tives and entertainers from nearly every continent on the globe. Dr. Michael Libbee, from the Geography Department at Central Michigan University and Coordinator for the Michigan Geographic Alliance, was in attendance and shares his experiences from the evening.

> *Imagine a Scottish bag piper, a pair of students doing a gymnastics dance routine, a marimba band, an African dancer on 10-foot stilts, and a chance to have your picture taken as a front page of a National Geographic magazine. Now you have seen the events that occurred just while walking from the front door and into the reception hall. Tom Brokaw was the MC for the evening and former President George H.W. Bush sent a video congratulation note for his fellow Yale classmate The dinner featured entertainment from around the world. The Leakeys, known as the first family of anthropology, made the trip from Africa to help celebrate Gil's successes. Richard Leakey and Bill Marriott, both life-long friends, told childhood stories.*
>
> *For the geographers and teachers in the room, the highlight of the evening was Gil's presentation itself. In a room filled with close to 1,000 of the country's, and the world's, most influential people, Gil made the presentation of his career. Gil eloquently presented the case for the relevance of geography and the importance of geography education if our children are going to understand the complex interconnected world they live in.*
>
> *Gil's Daughter, Dr. Alexandra Grosvenor Eller, made the final presentation, ending by saying that his family wanted Gil back. A gospel choir finished the evening.*

John Fahey, President of NGS, announced that the Grosvenor Gala appears to be the most successful non-political Gala ever held in DC, raising over $7,000,000 in contributions, which will be matched by NGS to create has the **Gilbert M. Grosvenor Fund for Geography Education** in commemoration of his achievements. This fund will be used to enhance K-12 geography education in the U.S. through grant-making, outreach, and innovative projects.

Do you think we need to invest in better geography education? Take a glance at the daily headlines…Illegal Immigration, Bird Flu, Hurricane Devastation, Rising Gas Prices, and Global Warming. What you will see is geography in our lives, daily. Geography goes far beyond maps and factoids such as capitals and major rivers. It includes the fundamental forces of Earth's diverse physical and human systems, the interactions between people and their environment, and the relationships among Earth's natural and cultural regions.

Unfortunately, studies show that Americans' geographic literacy, awareness and ability to apply key geographic concepts to real-world situations, is far poorer than other nations. See pages 7-8 for highlights of the 2006 Roper Poll on Geographic Literacy and the GENI website for the Final Report and Executive Summary. After viewing the results, I think you will agree, the efforts of Gilbert M. Grosvenor should be applauded and that we need your help too. Visit the GENI website and the ***MyWonderfulWorld.org*** site to get involved today!

Photograph by James Blair

MyWonderfulWorld.org

A National Geographic-led campaign

Geography is an essential element of a 21st Century Education!

Geography is a critical tool to stay competitive in today's world. Math and reading gives kids the basic skills to survive; geography gives them the edge to thrive. It's more than maps. It's about people and cultures, commerce and industry, environment and ecology. It helps us make the connections between the "who, what, why and where" of the global society.

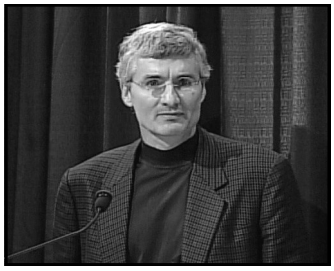
Geographic Bee continued from page 1

One hundred and one students from around the state qualified for this year's Indiana Geographic Bee. These fourth through eighth graders came to IUPUI on Friday,

Kathy Kozenski [Bee Coordinator], Jonathan Hielkema, John Hensle, Jacob Klopfenstein, and Angela Buchman [Moderator]

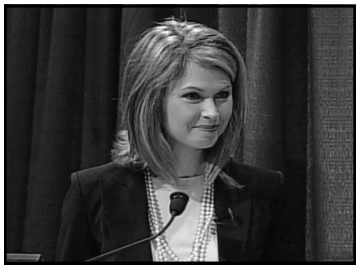
March 31st with amazing geographic knowledge and a few jitters thrown in. The students, along with their family members and teachers, were welcomed to campus by Dr. Robert White, Dean of Liberal Arts at IUPUI, and Dr. Roger Jenkinson from the Geography Department at Taylor University. Dr. Suellen Reed, Indiana Superintendent of Public Instruction, congratulated their achievement and wished them luck in the pending competition.

The preliminary round produced eight students with a perfect score, answering each of their initial eight questions correctly. Those students automatically advanced to the final round, while eighteen others headed to the tie-breaker round. It took only two questions to whittle those eighteen down to two and complete our set of ten finalists. This year's national sponsor, JP Morgan Chase & Company, sent a representative, Randy Stevens from the Indianapolis Office, to say a few words before the start of the final round and give the participants some last-minute encouragement.



Randy Stevens with JP Morgan Chase & Company

This year the Indiana Geographic Bee welcomed a new final round moderator. Angela Buchman, from WISH TV Channel 8 in Indianapolis, graciously accepted GENI's invitation to lead the final round, which was recorded and aired on PBS Channel 20 on May 19th. She is an Indiana native with a BS degree in Atmospheric Science from Purdue University and the AMS Seal of Approval from the American Meteorological Society. Ms. Buchman handled numerous challenging pronunciations beautifully. She also helped the finalists feel as comfortable as possible, especially with the cameras rolling.



Moderator, Angela Buchman from WISH TV Channel 8

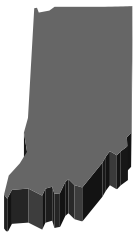
For more information about the National Geographic Bee (school, state, and national levels), visit www.nationalgeographic.com/geographybee. Get your school involved in the 2007 Bee. Registration is only $50 and the National Geographic provides all of the materials for you. If you would like to order a DVD copy of the 2006 Indiana Geographic Bee, visit the GENI website to download an order form.

Top ten qualifiers prepare for the final round competition.

2006 Indiana Geographic Bee Statistics

Gender Breakdown:
84 Boys 17 Girls

Grade Breakdown:
4th Graders—1 7th Graders—35
5th Graders—4 8th Graders—50
6th Graders—11



School Breakdown:
Public Schools—70
Private Schools—29
Religious—26 (Catholic 15, Lutheran 6, Christian 5)
Non-Religious—3
Home Schools—2

Congratulations to our Educator's Raffle winners: Rachel Wheeler, Saint Patrick School in Terre Haute; Tim Lax, Columbus Northside Middle School in Columbus; Joanne Quast, Sullivan Junior High in Sullivan.

Gilbert Melville Grosvenor:

Ambassador for Geography Education and National Geographic Society's Chairman of the Board

By Melissa Martin

"Without Geography, You're Nowhere". We have heard that saying many times and have used it many times in our classrooms. But what we should be saying is*..."Without Gil Grosvenor, geography education would be going nowhere!"*

Gilbert Melville Grosvenor was born to Melville Bell and Helen North Rowland Grosvenor on May 3, 1931 the youngest of three children. He attended Deerfield Academy and graduated from Yale University in 1954. Growing up a "Grosvenor", he didn't necessarily always want to follow in his ancestor's footsteps- leading the National Geographic Society. His first intentions were to study medicine until he "discovered" a love for photography and journalism.

His first job at the Society was a picture editor in the summer of 1954. One of his first pieces to be published in the magazine was entitled, "*Helping Holland Rebuild Her Land*".

In June, 1970 Gil was named editor of the National Geographic Society. During his ten years as editor, membership grew by three million and circulation of the magazine surpassed the ten million mark. He also launched the children's magazine *National Geographic World* in 1975.

A decade later, he would become the president. As president, he would introduce two new magazines *National Geographic Traveler* and *National Geographic Research.* But, as his legacy at the Geographic will forever be remembered, he established geographic literacy as an important part of the NGS mission. He established the Geography Education Foundation to encourage teaching geography in schools and also began the National Geography Bee. In 1986, the foundation started to form a network of teachers across the country to improve geography education. This network grew from seven state alliances in 1986 to over 50 today.

Photograph by Gordon Gahan

After five generations of a member of the Bell-Grosvenor family leading the National Geographic Society, Gil stepped down as president in 1996 and assumed the position of chairman of the board. Although he no longer has day-to-day duties to fulfill, he still has his favorite project— his mission to put geography education in the forefront very much alive. He was awarded the nation's highest civilian honor; the Presidential Medal of Freedom from President George W. Bush in the summer of 2004 for his outstanding contributions to geography education. You can still find Mr. Grosvenor traveling the country visiting schools and classrooms promoting and raising awareness for geographic education

Mr. Grosvenor with President Bush in the East Room

On May 3, 2006; his 75th birthday, a gala event was held in Washington DC for the purpose of raising geography awareness and to raise funds for the new Gilbert M. Grosvenor Fund for Geography Education. The new fund will be used to enhance K-12 geography education through grants, projects, and outreach. The event entitled *A lifetime of service, An evening of celebration* to honor Gil for his dedication to geography education and the National Geographic Society.

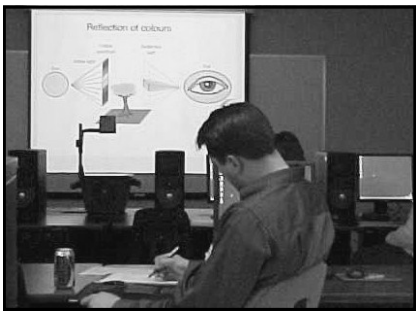
As educators and proponents of geography and geography education, we are greatly indebted to Gil Grosvenor for his tireless efforts to remind everyone that *geography is more important than ever in a complex and interdependent world.*

Thank you, Gil!

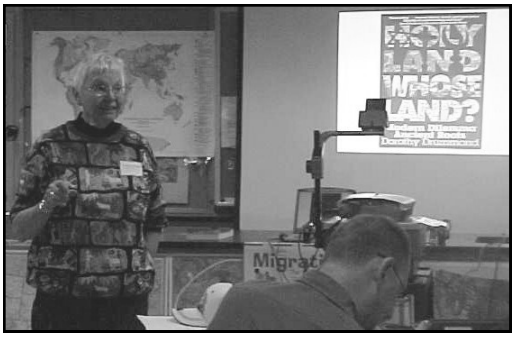
Indiana State University Hosts Weekend Workshop

By Dr. Meredith Beilfuss

Have you ever wondered what your school looks like from the air? If so, that was one of the topics covered this year at GENI's spring Weekend Workshop at Indiana State University. The workshop included great sessions on topics such as the *Five Themes of Geography*. This session provided engaging hands-on activities related to each of the Five Themes. Other sessions included a focus on GeoSpatial technologies, both for the expert and novice learner. A basic introduction to GIS showed teachers how to use something as simple as a white sheet and M & M's to demonstrate the layering of data. Two sessions, *GeoSpatial Technologies (including Remote Sensing, GPS and GIS)* and *GIS on a Dime*, included specific activities for teachers to use in their classrooms when resources are limited. Exciting connections were made between online resources and our classroom learning objectives.



The session on *Architectural Significance* included an excursion into downtown Terre Haute and a tour of one historic home that is now the Farrington Grove Bed and Breakfast. The celebrated author of *Holy Land, Whose Land?*, Dorothy Drummond, presented an amazing session on *Geography of the Middle East,* which emphasized current cultural issues. This cultural focus was continued with a most intriguing talk by Jeff Koehler of the Clay County Historical Society on the historic canal system in Indiana.



We wrapped up this exciting weekend workshop by giving away five hand-held Garmin E-Trex Legend GPS units to get participants excited about bringing units into their classroom!

Ju- ly 14, 2006

ArchiCamp

9:00 am—3:00 pm

What is ArchiCamp?! It's a fun-filled day of exploring Thorntown's unique architecture and stories for kids ages 8-12!

HISTORIC LANDMARKS FOUNDATION OF INDIANA

- Decorate your own hardhat and be a builder for the day
- Hike the Keewasakee Trail, learn about buildings from long ago
- Build a model of historic Thorntown using recycled materials
- Create a garden stepping stone using mosaic tiles
- Decorate your own hardhat and be a builder for the day

Snacks and drinks will be provided.—you will need to bring a sack lunch. Registration is $20.00 and includes materials, tours and souvenirs. To reserve your ArchiCamp place, call Suzanne Stanis 800-450-4534 (stanis@historiclandmarks.org) or Pat Gillogly, 765-436-7966. Registration deadline is July 7. **Camp is limited to 20 kids, so don't delay!**

NATIONAL GEOGRAPHIC

NEWS

CONTACT: Sarah Clark
(202) 828-5664
sclark@ngs.org
Lindsay Keller
(202) 261-2871
lindsay.keller@mslpr.com

YOUNG AMERICANS STILL LACK BASIC GLOBAL KNOWLEDGE, NATIONAL GEOGRAPHIC-ROPER SURVEY SHOWS

U.S. Youth Ill-Prepared to Succeed in Globally Connected World

EMBARGOED: For release 10 a.m. (ET, U.S.) Tuesday, May 2, 2006

WASHINGTON—Despite the barrage of news coverage about the Iraq war since it began in 2003, six in 10 young Americans ages 18 to 24 cannot find Iraq on a map of the Middle East, according to a new National Geographic-Roper Public Affairs 2006 Geographic Literacy Study. Two-thirds do not know that the catastrophic October 2005 earthquake that killed 70,000 people struck in Pakistan. More than four in 10 can't even place Pakistan in Asia.

Even domestic natural disasters such as Katrina appear to have little impact on the geographic knowledge of young Americans. One-third of those surveyed could not find Louisiana, and almost half (48 percent) could not locate Mississippi on a U.S. map. On a more practical level, given a map of a hypothetical place and told they could escape an approaching hurricane by evacuating to the northwest, one-third would travel in the wrong direction.

The survey demonstrates young Americans' limited understanding of their world within and beyond their country's borders. Respondents answered just over half (54 percent) of the questions correctly, and they don't appear to value skills that would enhance their knowledge. In fact, fewer than three in 10 of those surveyed think it is absolutely necessary to know where countries in the news are located. Only 14 percent believe speaking another language fluently is a necessary skill.

"Geographic illiteracy impacts our economic well-being, our relationships with other nations and the environment, and isolates us from our world," said John Fahey, National Geographic Society president and CEO "Geography is what helps us make sense of our world by showing the connections between people and places. Without geography, our young people are not ready to face the challenges of the increasingly interconnected and competitive world of the 21st century."

According to the survey, conducted in December 2005/January 2006, young Americans are alarmingly ignorant of the relationships between places that give context to world events. Seventy-four percent believe English is the primary language spoken by the most people in the world; it is Mandarin Chinese. Seventy-one percent don't know that the United States is the largest exporter of goods and services; nearly half (48 percent) think it is China. And while China's population is actually four times the size of the U.S. population, 45 percent of young Americans think it's only twice as large. Though the outsourcing of jobs to India has been a major business news story, almost half the respondents (47 percent) were not able to find that country on a map of Asia.

Respondents also demonstrated poor understanding of global hotspots. Seventy-five percent couldn't locate Israel on a map of the Middle East, despite the fact that the conflict between Israelis and Palestinians has been ongoing throughout these young people's lives. Seven in 10 couldn't find North Korea on a map of Asia, and six in 10 did not know its border with South Korea is the most heavily fortified in the world. Thirty percent thought the most heavily fortified was the U.S.-Mexican border.

On a more hopeful note, the study shows that the Internet can have a positive impact. Since the previous National Geographic-Roper Geographic Literacy Study in 2002, the percentage of young Americans who use the Internet for news on world current events has more than doubled, up to 27 percent from 11 percent. Eighty percent of young adults have been online within the past month. Roper analysts found that going online to get world news is positively associated with young Americans' performance on the quiz.

The National Geographic-Roper Public Affairs 2006 Geographic Literacy Study polled 510 respondents between the ages of 18 and 24 in the continental United States. The poor performance of young Americans on the poll underscores the results of the 2002 study in which Americans scored second to last on overall geographic knowledge, trailing Canada, France, Germany, Great Britain, Italy, Japan and Sweden. For additional 2006 Roper Poll results, go to www.nationalgeographic.com/roper2006.

This is the first 2 pages of a 3-page press release sent out May 2nd by the National Geographic. Visit the GENI website for a complete copy of the Roper Poll Final Report and Executive Summary. Also visit MyWonderfulWorld.org for resources to help kids become smarter about their world, including suggestions for outdoor family activities, ways parents can work to get more geography into the classroom, links to the best geography games and online adventures for kids and teens, classroom materials for educators, and ways for young and old to test their global IQs.

Me and My Space

By: Joe Power – August 2005
Eagle Park Community School, Hammond

Grade Level: 4

Estimated Time: approximately four traditional classroom sessions, but not limited to.

Purpose: In order to enable students to experience their space artistically, a global positioning systems unit will be employed to identify points of interest, create a map identifying the points of interest, and utilize this "hard" data as the basis for artistic expression.

Indiana Social Studies Academic Standards:
Fourth Grade: Geography, latitude and longitude, 4.3.1; Earth, Sun relationships, 4.3.3

Indiana Visual Arts Academic Standards:
Fourth Grade: Use of line, shape, etc, 4.8.1; Shapes, colors, space 4.8.2

Objectives: Upon completion of this activity, students will be able to...
1. plot items located in a school neighborhood on a graph,
2. relate latitude and longitude to a graph,
3. show examples of plotted items and relate them to shapes, lines, balance, rhythm, variety and use of proportion,
4. identify GIS (Geographic Information Systems) and briefly explain the term: information technology systems used to store, analyze and manipulate data and display a wide range of geographic information,
5. identify how space can affect a person, space defined as personal and physical and social, and
6. give an example in which GIS will be used in the visual arts in the future.

Materials Required:
* Graph Paper
* Colored Pencils
* Acrylic Paints
* Canvas
* Aerial Photography of School and Neighborhood
* GPS unit with plotting software

Procedures:
1. In a large group or small groups, use the GPS unit and plot several items in your schools neighborhood. Some examples, trees houses, mailboxes, playgrounds, fire hydrants, parking lots.
2. Transfer data to a computer and print out the plotted results.
3. Using graph paper, plot out the items that were identified. Use different color pencils for different items. Understand that you are creating a type of map (title, orientation, theme, author, latitude/longitude, scale).
4. Transfer the plotted items to a canvas.
5. Using your imagination connect points and develop shapes (geometric and organic), and lines.
6. Define images with shading and depth.
7. Use some of the plotted areas to develop personal profiles, by using line, curve, etc.
8. Paint with acrylics to complete the applied elements.
9. Have open discussions about each other's works. What does one student see in another students work? Did the requirements of plotting distract from creativity? Where in art history would the painting be considered replicating? How does the relationship of the shapes compare to our relationship of space?
10. Compare the art work with the aerial photography and the map on the graph paper. Discuss the aerial photograph as a form of art (Earth as art).

Assessment / Evaluation:
1. Completion of a personal piece of artwork.
2. Positive interaction within small groups.
3. Open discussion of personal space.

Connect the Dots

Written by: Janet Cunningham with GPS instructional teaching by Scott Foster, Hendricks County Extension Educator. 4-H Leader, Danville, September '05

Grade Levels: This activity is targeted for 4-H Clubs, which have members in grades 3 – 12, to be used at the Hendricks County Fairgrounds. The activity can be modified to be used in other venues as well.

Estimated time: Usually the time allotted for club meeting activities are limited to about an hour but can be altered to as short or as long as needed. If possible, the activity could take 2-3 sessions, with the first session focusing on topographic maps, aerial photographs and introduction of the GPS unit. The second and third sessions could review the previous materials, practice GPS use, and implement the field work.

Purpose: This activity is intended to be used to introduce the concept of basic map reading and expose the students to GPS use, and its many real-life applications.

Objectives: Upon completion of the "Connect the Dots" activity, students will be able to...

- explain latitude and longitude,
- explain the use of satellites in global positioning systems,
- identify the Hendricks County Fairgrounds on the appropriate topographical map and on *orthophotography* (aerial photography) of Hendricks County,
- describe a waypoint,
- utilize a GPS unit to locate and mark waypoints,
- explain the relationship between a *topographic map* and an aerial photograph, and
- understand the relationship between the GPS waypoints and the aerial photograph.

Indiana Academic Standards Addressed:

Geography: 4.3.1; 5.3.1; 6.3.1, 6.3.2; 7.3.3; 8.3.1, 8.3.11; WG1.1, 1.3.

Materials Needed:

For the students:

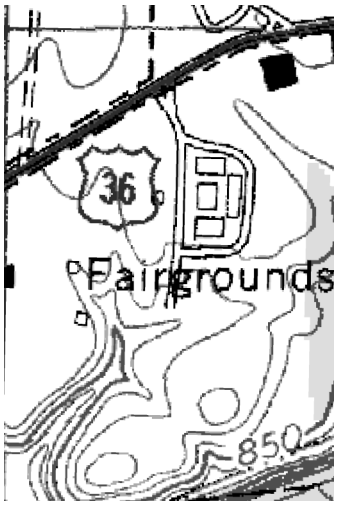
⇒ several topographical maps of Hendricks County Fairgrounds quadrangle (one for each small group)
⇒ pencil and paper for each group
⇒ step by step instructions for marking a waypoint (from the GPS unit instructional book - one for each group to be taken with them outside)
⇒ instructions for where to go and what to mark (one for each group)
⇒ computer (or laptop) with printer connections load with the GIS software and with the aerial view of Hendricks County (one for the instructor)
⇒ colored pencils (no particular color)

For the instructors:

⇒ charts with prime meridians, latitudes and longitudes (for explaining basic concepts)
⇒ topographical map
⇒ posters with each GPS screen (from the GPS unit instructional book - to explain the use of the unit)

Procedures:

1. Using the chart with the prime meridian, begin with a review of basic concepts such as the prime meridian and latitude and longitude.
2. Explain about the satellites that circle the Earth and "why" and "how" they can locate a GPS unit. Visit www.garmin.com/aboutGPS for information and images.
3. Introduce the topographic map. Identify items on the map (railroads, water bodies, hills, valleys). Explain "how" to read a topographical map - degrees, minutes and seconds. Provide several examples and involve the students. *[Go to www.in.gov/dnr/publications/locationmap.html to find what 7.5 minutes series quadrangle would cover the area you would like to use. Quads can be purchased from the Indiana DNR for $6/copy. For a description of the symbols used visit www.mapserver.maptech.com/mapserver/topographic_symbols/USGS_top.html]*



4. Next, break down into small groups and work with the topographic map of the area to find the coordinates of the 4-H Fairgrounds. Have them record these to be used later when they are outside.
5. Gather back together and explain (using the GPS unit instructional book) about the GPS unit, how it needs three satellites to get your location, how to read the coordinates on the unit for your location, how to mark a waypoint, and how to follow the compass to a location.
6. Each small group is to mark the following waypoints at the Hendricks County Fairgrounds: (with each group, send a step by step instruction sheet for marking waypoints and the following list of locations they are to mark)

    - ☐ the Community Building at the northeast corner,
    - ☐ the southwest corner of the intersection just south of the Expo Hall,
    - ☐ the intersection on the road that turns north to the caretaker's house from the road that continues out past the parking lot and camping area, and
    - ☐ the horse washing area at horse barn on the west end. (From the horse barn use the compass to help you navigate to the Community Building's waypoint that was marked earlier.)
    - ☐ Last, go to the sign at the front entrance and write down the coordinates.

7. When this is done they are to bring their GPS unit in and the leader (or designated adult) will download the information onto the laptop onto the aerial view of the fairground and print out the map of the correct locations and their findings to see how well they marked their locations/waypoints. (Be sure to explain that the findings are within a range so probably will not be exact.) Also, have them tell the adult the coordinates they had for the front sign and how close they were to that when they stood at the sign.
8. With the print out, have the group 'connect the dots' with colored pencils and discover the shape. (It should be in the shape of a 4.)

Closing: Gather together when every group is done and discuss findings and the journey in doing this exercise. Have students brainstorm how a GPS unit can help in everyday lives.

Assessment:

1. Did everyone learn one thing?
2. Did each group come close to matching the correct locations?
3. When the dots were connected, did the resulting shape resemble the number 4?
4. Did the activity seem to make them more interested in learning more about maps, GPS, aerial photography?

Extentions:
Introduce GeoCaching and set up an activity at your site. Program the GPS units and hide the stashes. Note what is appropriate for stashes and make sure you seek necessary permission for the grounds being used. For some handy quidelines, visit www.geocaching.com.

Overhead Transparencies Jump to Geo-Spatial Thinking

From: Jennifer Johnson, Digital Libraries Team
IUPUI University Library; Updated, August '05

Purpose: To ease the students into the concepts of geo-spatial thinking, a series of five overhead transparencies, each conveying a different "layer" of information, will enable the students' to bridge their perception of traditional mapping techniques to twenty-first century geo-spatial technologies.

Grade Level(s): 4-12

National Geography Standards:
1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.
18. How to apply geography to interpret the present and plan for the future.

Indiana Social Studies Academic Standards:
Fifth Grade: Individuals, Society, and Culture – 5.5.6; *Sixth Grade:* Geography – 6.3.2; *Seventh Grade:* Geography – 7.3.3; Individuals, Society, and Culture – 7.5.4 (focusing on geo-spatial technologies in the late 20th century and the 21st century); *Eighth Grade:* Geography – 8.3.11 (expand this activity to focus on specific standard goals); Individuals, Society, and Culture - 8.5.7; *High School:* World Geography – 1.3, and 1.4

Objectives: Upon completion of this activity, students will be able to...
- create a series of 3-4 maps (overheads) that convey one piece of information each but combined create a relationship between layers of information,
- give examples of geographic (spatially distributed) data (layers of information); ie— streets, sewer lines, street lights, schools, grocery stores, libraries, bus stops,…),
- identify GIS (Geographic Information Systems) and briefly explain the term: information technology systems used to store, analyze, manipulate, and display a wide range of geographic information,
- state at least one way in which GIS has impacted society in the 21st century, and
- give one example in which GIS may facilitate problem solving in their community.

Materials Required:
Four to five overheads of the school and environs obtained from a mapping/local data provider (ie- Indianapolis/Marion Co. GIS Website, www.savi.org, etc.):

Overhead one should be of the school
Overhead two should be of the streets surrounding the school.
Overhead three should be of vegetation/green spaces around the school.
Overhead four should be of the school "footprint".
Overhead five should be of the stoplights / stop signs around the school.
Overhead six should be an orthophotograph (aerial photograph) of the school and immediate area.

New Vocabulary:

Grade 3:	*Grades 4-5:*
Layers	overhead
Perception	perception
Bridge	traditional
Aerial	aerial
Display	analyze

Key Inquiry Questions:
1. What types of information can be conveyed in a map?
2. How can maps be utilized to solve problems?
3. How can you create your own map?

Procedures: (This activity follows nicely the "*M&M Community" activity,* taking students further toward understanding the concepts of points of data, layers of data, multi-dimensional views, traditional mechanisms for obtaining and mapping data, twenty-first century mechanisms for obtaining, manipulating, and analyzing data – geospatial technologies.)

1. Introduce the activity by placing the first transparency on the overhead and ask the students if they know what the image conveys. Discuss.
2. Place the second overhead on top of the first, ask the students what new information the image conveys.
3. Proceed through the remainder of the overheads in the same fashion. You may need to utilize different information on an overhead, depending upon data availability for your community. (For example, nearby gasoline stations, houses, man-hole covers, sewer lines, drainage ponds.)
4. After all overheads have been viewed, discuss the fact that traditional mapping would have a person, in the field, mapping each layer of data. Much of this traditional data has been computerized, enabling easy access and use. Some field work is still required for obtaining new pieces of data (for example, specific tree identification around the city), but some data can be acquired via orthophotography and satellite imagery with no field work required by an individual (for example, outbuildings in neighborhoods).
5. Now, place the aerial photograph (should be fairly current) of the school onto the transparency. Discuss "what" the students see, "what" the students do not see. Place the street overhead and school "footprint" overhead on top of the aerial photograph. Remind the students how quick this activity took, when just twenty years ago, this activity would have required each overhead map to be developed by hand over a period of about two weeks.
6. Introduce the term GIS (Geographic Information System), of which many types of GIS systems exist around the globe. Visit a local data source on-line. For the Indianapolis metropolitan area, SAVI (www.savi.org) is a great source of data. This is the time to discuss the use of technology to obtain, manage, and manipulate data to prepare maps, bar graphs, pie charts, other graphic representations, and reports to answer questions about a community. Instead of the hand-collection of data, hand-mapping, and slow analysis (which could take weeks), new technology (*geo-spatial* = of the Earth from a spatial perspective) enables students and users to solve problems more efficiently. Discuss the future of GIS to even more rapidly obtain data, analyze data, and devise solutions. Examples: relocate a street signal, create an appropriate street entry/exit for a new strip mall, redirect a stream/wetland, revise a bus route.

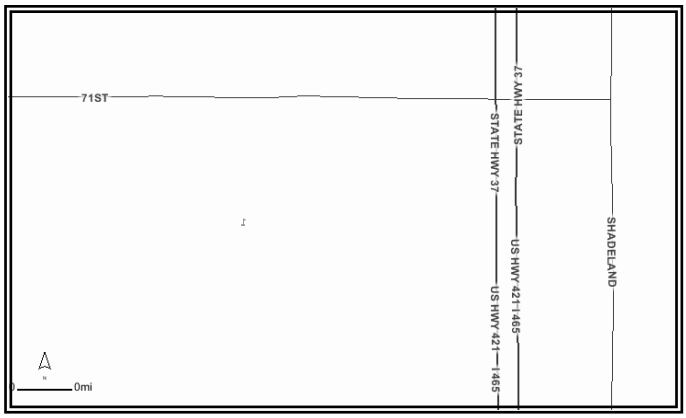
Assessment / Evaluation:

1. Participation in the group discussion indicating comprehension.

Resources:

Indianapolis General Data Viewer—*http://imaps.indygov.org/prod/GeneralViewer/viewer.htm*
A GIS for Southwestern Indiana—*http://igs.indiana.edu/arcims/index.html*
TerraServer USA—*http://terraserver.microsoft.com/*
A GIS Atlas for Indiana—*http://igs.indiana.edu/arcims/statewide/index.html*
Indiana Geological Survey—*http://igs.indiana.edu/*

Sample Streets Overhead



Sample Areal Photography

GPS Meets Orthophotography

By: Jill Saligoe-Simmel, Indiana Geographic Information Council
An activity idea from a non-educator who is a Geographer and GIS Specialist:

Grade Level(s): middle and high school students

Estimated Time: The activity could take weeks dependent upon the access to GPS units.

Purpose: To enable students to use a GPS unit, to understand how global positioning systems work, and to gain a sense of personal and social use of space.

Objectives: Upon completion of this activity, students should be able to...

- utilize a GPS unit,
- explain how a global positioning system works,
- upload GPS data to a computer software program,
- discuss the resulting pattern obtained from personal and group data, and
- identify aspects of the community on an aerial photograph.

Materials Required:

- GPS unit(s)
- Software to transfer GPS data to computer
- Local orthophotography (aerial photography)

Procedures:

1. Introduce the students to the basics of a global positioning system (use the instructional guide or visit the Garmin website)
2. Introduce the students to the GPS unit. Practice using the unit outside.
3. Nightly, one student gets to take the GPS unit home. The student should take readings anywhere they go from the time they leave school until they return the next morning. Each waypoint/reading/mark should be identified by site name also (gas station, Target, Walgreens, Kroger…).
4. Then, upon returning to school the next day, the student would upload their data points.
5. Once all of the students have an opportunity to utilize the GPS unit after school, the entire set of data points should be over-layed onto the local orthophotography (aerial photograph). The pattern of where everyone travels when they are not at school should be interesting to see. (I imagine the paths from school will look like a flower when everyone is done?) Discuss similar patterns; different patterns.
6. Have the students identify objects on the aerial photograph as they are discussing the patterns. What relationships do the students see between the patterns and the objects in the aerial photograph.
7. Students write an essay about their GPS experience and their pattern interpretation and their thoughts about the use of the orthophotography.

Assessment:

⇒ Students will participate in the activity and will mark/read at least five sites while they have the GPS unit.
⇒ Students will successfully upload the data from the GPS unit to the computer software.
⇒ Students will contribute to the discussion.
⇒ Students will write a 2-page essay.

Extension:

Students could take the GPS unit home for a weekend or for an extended road trip. This data would provide an extreme pattern.

Summer Educator Opportunities

Maps Institute for Teachers in Grades 3-5 / July 17-21

Presented by GENI and The Children's Museum of Indianapolis. Help students experience the excitement of maps as tools for discovery. Get the inside story on the National Geographic "Maps: Tools for Adventure" exhibit, opening at The Children's Museum in October, and learn how you can use the exhibit to help your students understand geography. Engage in hands-on mapping activities and see how geospatial technologies are helping us to analyze information and solve problems. Try out your new mapping skills in an outdoor orienteering and team-building experience. Institute fee is $95. Two or three graduate credit hours are available for an additional fee. Contact the university of your choice. Advance registration required so call (317) 334-4400 or (800) 820-6214; or go to the www.childrensmuseum.org and click on the Teachers Page and Professional Development.

Civil War Preservation Trust Teachers' Institute / July 28-30

The non-profit Civil War Preservation Trust is holding its fifth annual free Civil War Teachers Institute in Richmond, VA. Education professionals who work with students in grades 4-12 are encouraged to attend. Teachers will have their choice of focused workshops on Friday and Sunday. Our high point will be the field trip on Saturday, when teachers choose either Pamplin Historic Park/ National Museum of the Civil War Soldier OR Petersburg National Battlefield. To register, teachers should e-mail Jennifer Rosenberry at jrosenberry@civilwar.org or call 301.665.1400 X 204. Meals are included, but teachers are responsible for their own lodging and transportation.

Great Lakes Institute 2006 / August 15-17

K-12 educators are invited to a 3-day workshop that will change your perspective on Lake Michigan. Participants will experience Lake Michigan on board the W.G. Jackson education vessel during a three-hour water quality cruise. Other sessions will focus on various aspects of the Great Lakes, from shipwrecks to fish species in this immersive two/night, three/day hands on workshop. Participants will reside in the cozy Learning Center cabins complete with showers and air-conditioning. Earn up to 2 hrs. of graduate credit through IU Northwest or Chicago State University, for an extra cost, or CRUs. Contact the IDELC at 219-395-9555 or email gpetersen@duneslearningcenter.org to receive a registration packet and reserve a spot. Cost of the workshop is $225 and includes meals, lodging and lots of materials!

Multi-Day Mississippi River Expedition Workshops / June-September

Come rediscover the Mississippi River through a one-of-a- kind trip aboard **Living Lands & Waters** floating classroom, barges, and aluminum plate boats as they travel north on the majestic waters of the Mississippi River**.** These FREE* workshops will feature guest speakers and interactive activities emphasizing the natural and cultural history of the river, the river's ecology, river stewardship, and ways to integrate river education through all disciplines. For more information, please contact Tammy Becker, Education Coordinator at tammy@livinglandsandwaters.org or at 309.236.0725 OR, visit ***www.livinglandsandwaters.org.***

PIER-International Affairs Summer Institute 2006 / July 6-12

Focus on South Africa: A one-week intensive introductory course for educators and other professionals with an optional field study to South Africa to follow. Tuition and fees: $300 tuition, including books and materials. Housing, meals and parking are extra. Limited scholarship in the form of partial tuition waivers available. Up to 6 CEU's upon successful completion of the full program. Application and full payment deadline June 1. Contact Janet Headly at janet.headley@yale.edu or 203-432-3429.

Geography Educators' Network of Indiana
IUPUI, School of Liberal Arts, CA345
425 University Blvd.
Indianapolis, IN 46202-5140
(317) 274-8879; geni@iupui.edu

http://www.iupui.edu/~geni

My Wonderful World.org

A National Geographic-led campaign

Maps Institute
July 17-21

2006 Indiana Geographic Bee Results